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# Evaluating Students' Knowledge of Elective Pregnancy Termination Before and After Educational Intervention

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## Background

Elective pregnancy termination (EPT) is one of the most common procedures women undergo in the US. It is estimated that 43% of women have had an EPT by age 45.

Access to EPT has become more difficult over the past decade. Since 2013, over 275 facilities providing EPT have closed. Leaving 11.3 million women of reproductive age without close access to care (Figure 1).

Efforts to increase access to EPT are multifactorial. Social movements have advocated to repeal prohibitory laws state and nationwide. Local governments, hospitals, and clinics have begun allowing mid-level practitioners such as Nurse Practitioners and Physician Assistants to provide EPT.

Finally, medical school take on the responsibility of training our future physicians the basics of EPT. This training is crucial, as physicians are a key component in advocating EPT as a vital component of women's health care.

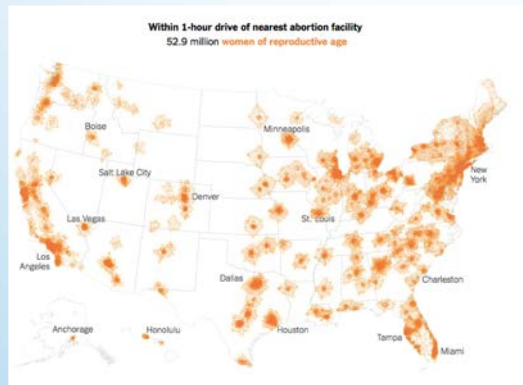


Figure 1: Areas within 1 hour drive of the nearest abortion facility in 2018. Source: Advancing New Standards in Reproductive Health, UCSF

A student should be able to:

Intended Learning Outcomes	Level of Competence	Instructional Method	Assessment Method	ACGME Competency	Hot Topics	APGO Dimension
A. Provide non-directive counseling to patients yearning pregnancy including unintended pregnancy	SH	CBL, CE, RP, S	CBL, CK, OSCE	A, B, D, E, F	A, E	OTC, vW
B. List surgical and non-surgical methods of pregnancy termination	K	CBL, CE, IL, L	MOQ, OE	B	PH, S	
C. Identify potential complications of pregnancy termination	K	CBL, CE, IL, L	MOQ, OE	B	S	
D. Describe the public health impact of the legal status of abortion	K	CBL, CE, E, L	MOQ, OE	F	A, GH	

Figure 2: Association of Professors of Gynecology and Obstetrics Educational Topic 34: Pregnancy Termination 2014 objectives

**Table 1** Components of abortion education in the preclinical years and in the third-year OB-GYN clerkship\*

Education components	Preclinical years	Third-year OB-GYN clerkship
Lecture on abortion	15 (19%)	25 (32%)
Lecture, abortion mentioned	17 (22%)	29 (37%)
Small group	4 (5%)	9 (12%)
Clinical experience	5 (6%)	35 (45%)
No formal education	34 (44%)	18 (23%)
Don't know	18 (23%)	0

\* Numbers in columns do not sum to 100% because some programs included more than one education component.

Figure 3: Results from Abortion Education in Medical Schools, a National Survey 2005

## Research Question

In 1997, the Association of Professors of Gynecology and Obstetrics (APGO) introduced medical student objectives about EPT in their core women's health curriculum (Figure 2). Despite their introduction over 20 years ago, studies over the past two decades have shown medical school curriculums around the country are not incorporating EPT into their curriculums (Figure 3).

As a response to this unmet need for EPT education, students at NSU-KPCOM designed an educational intervention designed to teach students the objectives put forth by APGO.

The primary objective of this study was to evaluate whether our educational intervention increased knowledge of APGO's EPT objectives as compared to a control group which received no intervention. We hypothesized that students participating in the educational intervention would show increased scores on content questions in surveys compared to both pre-intervention surveys as well as the control group's surveys.

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Methods

## Study Participants

- Randomized, controlled study
- Institutional Review Board approved

## Inclusion Criteria

- First and second year osteopathic medical students
- Reliable email
- Willing to complete a minimum of two surveys

## Exclusion Criteria

- Allopathic medical students
- Third- and fourth-year medical students.
- Demonstrated noncompliance with completing a pre-intervention survey.

## Educational Intervention

- Two common patient encounters:
  - Positive pregnancy test
  - Questions about termination
- 20-minute power-point presentation reviewing APGO's objectives (Figure 4.)
- Practice interviewing skills with student actors (Figure 5)
- Debriefing and clarifying questions

## Surveys

- Uniform in their questioning
  - Six multiple-choice on APGO's EPT objectives
  - One Likert-scale question



Figure 4: Students in the intervention group learning about APGO learning objectives through student-led PowerPoint



Figure 5: Students in the intervention group practice their interviewing skills on standardized patients

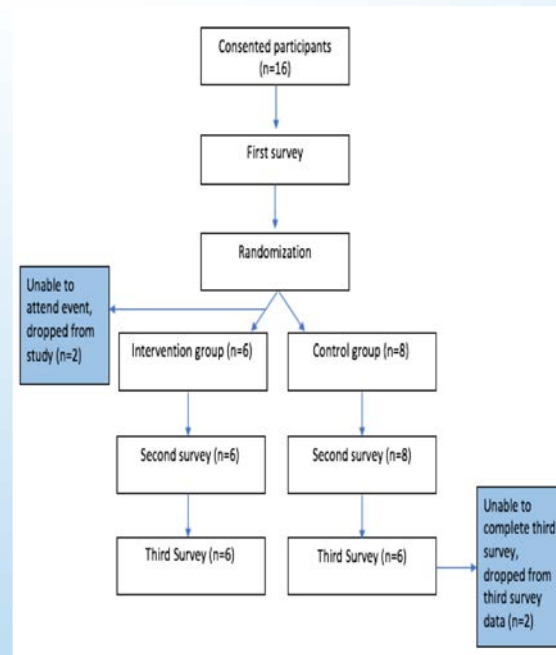


Figure 6: Study procedure

Results

Discussion

## Study Goals

- Student knowledge of APGO's EPT objectives prior to the study
- Student knowledge of APGO's EPT objectives after the study
- Retainment of knowledge of APGO's EPT objectives four weeks after the study
- Survey bias

## Study Procedures

See Figure 6

## Analysis

Primary study outcome

- Number of content questions correct
- Secondary study outcomes
- Comfort with providing non-directive counseling surrounding pregnancy including unintended pregnancy"

Analyzed using 2 sample T tests performed on Microsoft Excel

## Power of results

- Measured using Online Power Sample Size Calculator

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**Figure 7 and Figure 8** show the intervention and control groups' fraction of content questions correct in all three surveys given. While there were no significant differences between the control group responses, significant differences between the intervention groups post surveys and pre survey did exist ( $P = 0.0005$  and  $0.0004$  respectively.)

Figure 7: Box and whisker plot of survey content question scores in intervention group

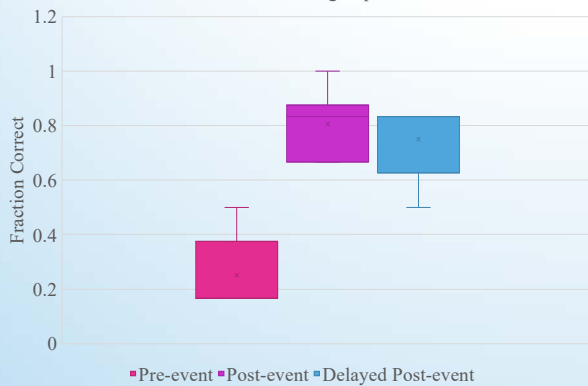
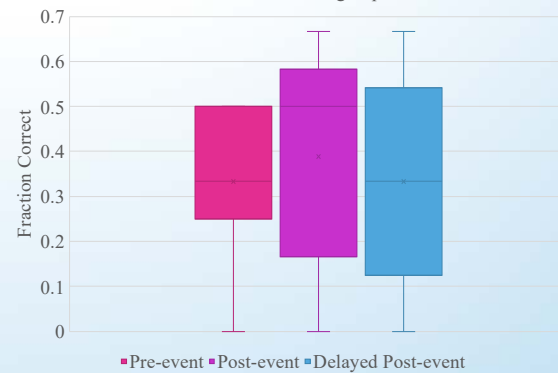


Figure 8: Box and whisker plot of survey content questions scores in control group



**Figures 9-11** compare fraction on content questions correct between control and intervention group prior to, (**figure 9**) immediately after, (**figure 10**) and four weeks after intervention (**figure 11**). While the pre-intervention results showed no significance ( $p=0.33$ ), both the immediate post intervention and four weeks post intervention data showed significant differences between control and intervention groups ( $p=.002$  and  $.003$  respectively)

Figure 9: Box and whisker plot of pre-event survey content question scores

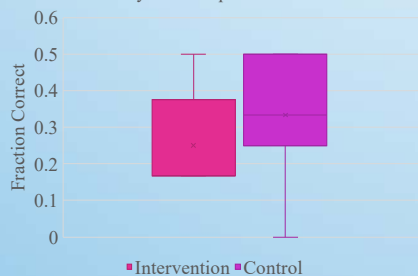


Figure 10: Box and whisker plot of post-event survey content question scores

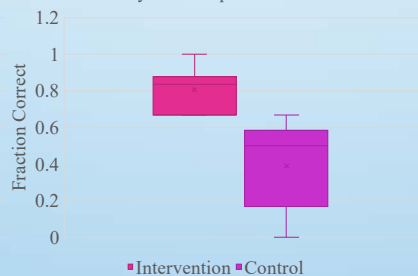
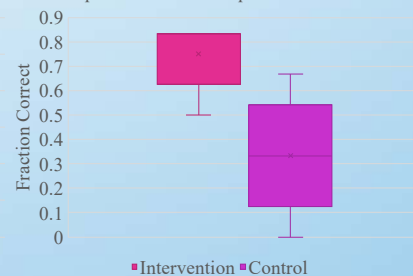


Figure 11: Box and whisker plot of delayed post-event content question scores



Results

Discussion

Table 1: Likert-scale Averages for Control and Intervention Groups

Likert-scale Averages	Pre-event	Post-event	Delayed post-event
Control	7.3	8.6	7.6
Intervention	5	5.2	4.3
P-Value	0.15	0.02	0.04

**Table 1** shows both control and intervention groups' average response value from the Likert-scale question in all three surveys. No significant difference was found in the responses prior to the intervention, significant differences were found in the two post event survey responses. ( $P=.002$  and  $.004$  respectively)

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## Content Questions

Each group's individual data

- Significant improvement between the intervention group's pre and both post surveys
  - Control group's data showed no significant change
- Comparing intervention to control group,
- Pre-survey data showed no significance
    - Both test groups began with the same understanding of APGO's EPT objectives
  - Post-event data showed significance in both post event surveys surveys
    - The intervention group's knowledge of APGO's EPT objectives increased significantly after the educational event and was retained four weeks after the event.

## Likert Scale Question

Comparing intervention to control group

- Significant change is seen in between the pre and two post event surveys.
- Test group had on average a higher average on the Likert scale question than the control group.

Each group's individual data

- No significant change between pre and either post-event surveys in either group.
  - The intervention group may have initially felt more comfortable providing counseling on elective termination



Figure 12: Intervention group and student educators involved in creating this project

## Sources

Abortion Access in the United States, 2014. (2017, January 17). Retrieved from <https://www.guttmacher.org/infographic/2017/abortion-access-united-states-2014>.  
Espy, E., Ogburn, T., Chavez, A., Qualls, C., & Leyba, M. (2005). Abortion education in medical schools: A national survey. *American Journal of Obstetrics and Gynecology*, 192(2), 640-643. doi: 10.1016/j.ajog.2004.09.013  
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## Power

Despite the significant results found between the two groups, the study performed was significantly underpowered. Power of the results ranged from 20 to 50 percent.

## Further Steps

While significant results were found between intervention and control groups, the power of the study remains low. The study run served as a pilot which now, with promising initial results, can be carried out with larger sample sizes, increasing the study's power.

Currently, NSUCOM's MSFC Chapter is repeating this study with larger sample sizes. (Figure 12) Providing results remain statistically significant in a higher powered study, students will open the learning intervention to other professional schools at Nova Southeastern University such .

As elective pregnancy termination is one of the most common procedures in the United states, it is important for all physicians, as well as mid level practitioners and medical staff, be knowledgeable on fundamental objectives presented by APGO. As research continues on this educational intervention, it is our hope that this tool can be used to educate medical providers on its fundamentals, thereby providing better care to women.